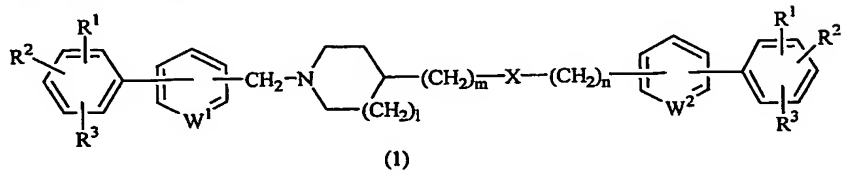
Claims

1. A histone deacetylase inhibitor comprising a cyclic amine compound represented by the following formula (1):



(1)

(wherein R^1, R^2, and R^3 each independently represent a hydrogen atom, a halogen atom, a hydroxy group, an alkyl group, a halogen -substituted alkyl group, an alkoxy group, an alkylthio group, a carboxyl group, an alkoxycarbonyl group, or an alkanoyl group; W^1 and W^2 each independently represent N or CH; X represents O, NR^4, $CONR^4$, or NR^4CO; R^4 represents a hydrogen atom, an alkyl group, an alkenyl group, an alkynyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heteroaryl group, a substituted or unsubstituted aralkyl group, or a substituted or unsubstituted heteroaralkyl group; and l, m, and n each represent a number of 0 or 1), a salt thereof, or a solvate thereof.

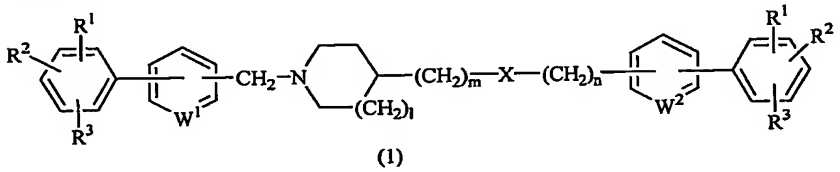
2. The inhibitor according to claim 1, wherein R^1, R^2, and R^3 are each independently a hydrogen atom, a halogen atom, a hydroxy group, a C1 -C8 alkyl group, a halogen -substituted C1 -C8 alkyl group, an alkoxy group having a C1 -C8 alkyl group, an alkylthio group having a C1 -C8 alkyl group, a carboxyl group, an alkoxycarbonyl group having a C1 -C6 alkyl group, or an alkanoyl group having a C1 -C6 alkyl group.

3. The inhibitor according to claim 1, wherein R^4 is a hydrogen atom, a C1 -C8 alkyl group, a C3 -C8 alkenyl group, a C3 -C8 alkynyl group, a substituted or unsubstituted C6 -C14 aryl group, a substituted or unsubstituted heteroaryl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms, a substituted or unsubstituted (C6 -C14) -aryl -(C1 -C6) -alkyl group, or a substituted or unsubstituted heteroaryl -(C1 -C6) -alkyl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms.

4. The inhibitor according to claim 3, wherein the substituent(s) of the aryl group, the aryl group of the aralkyl group, the heteroaryl group, or the heteroaryl group of the heteroaralkyl group represented by R^4 is (are) one to three groups or atoms selected from an alkyl group, an alkoxy group, an alkylthio group, a halogen atom, a nitro group, an amino group, an acetylamino group, a trifluoromethyl group, and an alkylenedioxy group.

5. The inhibitor according to claim 1, wherein the active ingredient is 4 -[N -(4 -methoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methoxyphenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,5 -dimethoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,4 -methylenedioxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -methyl -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methylthiophenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, or a salt thereof.

6. A medicine for treating cancer comprising a cyclic amine compound represented by the following formula (1):



(1)

(wherein R^1, R^2, and R^3 each independently represent a hydrogen atom, a halogen atom, a hydroxy group, an alkyl group, a halogen -substituted alkyl group, an alkoxy group, an alkylthio group, a carboxyl group, an alkoxycarbonyl group, or an alkanoyl group; W^1 and W^2 each independently represent N or CH; X represents O, NR^4, $CONR^4$, or NR^4CO; R^4 represents a hydrogen atom, an alkyl group, an alkenyl group, an alkynyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heteroaryl group, a substituted or unsubstituted aralkyl group, or a substituted or unsubstituted heteroaralkyl group; and l, m, and n each represent a number of 0 or 1), a salt thereof, or a solvate thereof.

7. The medicine according to claim 6, wherein R^1, R^2, and R^3 are each independently a hydrogen atom, a halogen atom, a hydroxy group, a C1 -C8 alkyl group, a halogen -substituted C1 -C8 alkyl group, an alkoxy group having a C1 -C8 alkyl group, an alkylthio group having a C1 -C8 alkyl group, a carboxy group, an alkoxycarbonyl group having a C1 -C6 alkyl group, or an alkanoyl group having a C1 -C6 alkyl group.

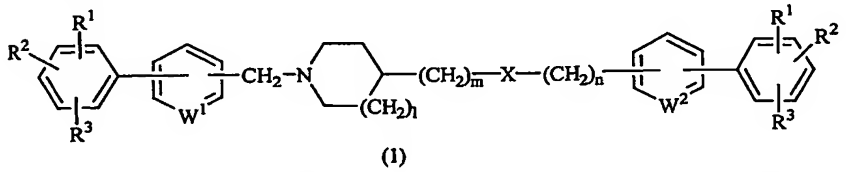
8. The medicine according to claim 6, wherein R^4 is a hydrogen atom, a C1 -C8 alkyl group, a C3 -C8 alkenyl group, a C3 -C8 alkynyl group, a substituted or

unsubstituted C6 -C14 aryl group, a substituted or unsubstituted heteroaryl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms, a substituted or unsubstituted (C6 -C14) -aryl -(C1 -C6) -alkyl group, or a substituted or unsubstituted heteroaryl -(C1 -C6) -alkyl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms.

9. The medicine according to claim 8, wherein the substituent(s) of the aryl group, the aryl group of the aralkyl group, the heteroaryl group, or the heteroaryl group of the heteroaralkyl group represented by R^4 is(are) one to three groups or atoms selected from an alkyl group, an alkoxy group, an alkylthio group, a halogen atom, a nitro group, an amino group, an acetylamino group, a trifluoromethyl group, and an alkylenedioxy group.

10. The medicine according to claim 6, wherein the active ingredient is 4 -[N -(4 -methoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methoxyphenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,5 -dimethoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,4 -methylenedioxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -methyl -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methylthiophenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, or a salt thereof.

11. A gene therapy facilitater comprising administering an effective amount of a cyclic amine compound represented by the following formula (1):



(I)

(wherein R^1, R^2, and R^3 each independently represent a hydrogen atom, a halogen atom, a hydroxy group, an alkyl group, a halogen -substituted alkyl group, an alkoxy group, an alkylthio group, a carboxyl group, an alkoxycarbonyl group, or an alkanoyl group; W^1 and W^2 each independently represent N or CH; X represents O, NR^4, $CONR^4$, or NR^4CO; R^4 represents a hydrogen atom, an alkyl group, an alkenyl group, an alkynyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heteroaryl

group, a substituted or unsubstituted aralkyl group, or a substituted or unsubstituted heteroaralkyl group; and l, m, and n each represent a number of 0or 1), a salt thereof, or a solvate thereof.

12. The facilitater according to claim 11, wherein R^1, R^2, and R^3 each are independently a hydrogen atom, a halogen atom, a hydroxy group, a C1 -C8 alkyl group, a halogen -substituted C1 -C8 alkyl group, an alkoxy group having a C1 -C8 alkyl group, an alkylthio group having a C1 -C8 alkyl group, a carboxy group, an alkoxycarbonyl group having a C1 -C6 alkyl group, or an alkanoyl group having a C1 -C6 alkyl group.

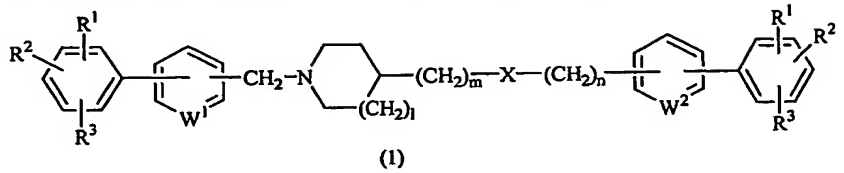
13. The facilitater according to claim 11, wherein R^4 is a hydrogen atom, a C1 -C8 alkyl group, a C3 -C8 alkenyl group, a C3 -C8 alkynyl group, a substituted or unsubstituted C6 -C14 aryl group, a substituted or unsubstituted heteroaryl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms, a substituted or unsubstituted (C6 -C14) -aryl -(C1 -C6) -alkyl group, or a substituted or unsubstituted heteroaryl -(C1 -C6) -alkyl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms.

14. The facilitater according to claim 13, wherein the substituent(s) of the aryl group, the aryl group of the aralkyl group, the heteroaryl group, or the heteroaryl group of the heteroaralkyl group represented by R^4 is(are) one to three groups or atoms selected from an alkyl group, an alkoxy group, an alkylthio group, a halogen atom, a nitro group, an amino group, an acetylamino group, a trifluoromethyl group, and an alkylenedioxy group.

15. The facilitater according to claim 11, wherein the active ingredient is 4 -[N -(4 -methoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methoxyphenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,5 -dimethoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,4 -methylenedioxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -methyl -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methylthiophenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, or a salt thereof.

16. A histone deacetylase inhibiting composition comprising a cyclic amine

compound represented by the following formula (1):



(I)

(wherein R^1, R^2, and R^3 each independently represent a hydrogen atom, a halogen atom, a hydroxy group, an alkyl group, a halogen -substituted alkyl group, an alkoxy group, an alkylthio group, a carboxyl group, an alkoxycarbonyl group, or an alkanoyl group; W^1 and W^2 each independently represent N or CH; X represents O, NR^4, $CONR^4$, or NR^4CO; R^4 represents a hydrogen atom, an alkyl group, an alkenyl group, an alkynyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heteroaryl group, a substituted or unsubstituted aralkyl group, or a substituted or unsubstituted heteroaralkyl group; and l, m, and n each represent a number of 0 or 1), a salt thereof, or a solvate thereof, and a pharmaceutically acceptable carrier.

17. The composition according to claim 16, wherein R^1, R^2, and R^3 are each independently a hydrogen atom, a halogen atom, a hydroxy group, a C1 -C8 alkyl group, a halogen -substituted C1 -C8 alkyl group, an alkoxy group having a C1 -C8 alkyl group, an alkylthio group having a C1 -C8 alkyl group, a carboxyl group, an alkoxycarbonyl group having a C1 -C6 alkyl group, or an alkanoyl group having a C1 -C6 alkyl group.

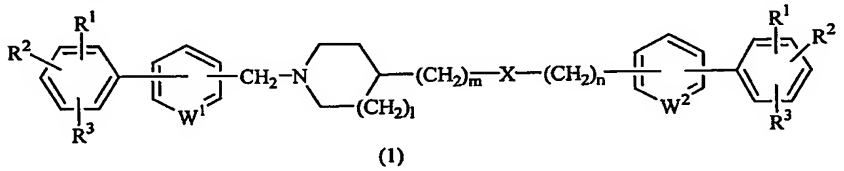
18. The composition according to claim 16, wherein R^4 is a hydrogen atom, a C1 -C8 alkyl group, a C3 -C8 alkenyl group, a C3 -C8 alkynyl group, a substituted or unsubstituted C6 -C14 aryl group, a substituted or unsubstituted heteroaryl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms, a substituted or unsubstituted (C6 -C14) -aryl -(C1 -C6) -alkyl group, or a substituted or unsubstituted heteroaryl -(C1 -C6) -alkyl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms.

19. The composition according to claim 18, wherein the substituent(s) of the aryl group, the aryl group of the aralkyl group, the heteroaryl group, or the heteroaryl group of the heteroaralkyl group represented by R^4 is (are) one to three groups or atoms selected from an alkyl group, an alkoxy group, an alkylthio group, a halogen atom, a nitro group, an amino group, an acetylamino group, a trifluoromethyl group, and an alkylenedioxy group.

20. The composition according to claim 16, wherein the active ingredient is 4 -[N -(4 -methoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4

-[N -(4 -methoxyphenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,5 -dimethoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,4 -methylenedioxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -methyl -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methylthiophenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, or a salt thereof.

21. A medicinal composition for treating cancer comprising a cyclic amine compound represented by the following formula (1):



(1)

(wherein R^1, R^2, and R^3 each independently represent a hydrogen atom, a halogen atom, a hydroxy group, an alkyl group, a halogen -substituted alkyl group, an alkoxy group, an alkylthio group, a carboxyl group, an alkoxycarbonyl group, or an alkanoyl group; W^1 and W^2 each independently represent N or CH; X represents O, NR^4, $CONR^4$, or NR^4CO; R^4 represents a hydrogen atom, an alkyl group, an alkenyl group, an alkynyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heteroaryl group, a substituted or unsubstituted aralkyl group, or a substituted or unsubstituted heteroaralkyl group; and l, m, and n each represent a number of 0 or 1), a salt thereof, or a solvate thereof, and a pharmaceutically acceptable carrier.

22. The composition according to claim 21, wherein R^1, R^2, and R^3 are each independently a hydrogen atom, a halogen atom, a hydroxy group, a C1 -C8 alkyl group, a halogen -substituted C1 -C8 alkyl group, an alkoxy group having a C1 -C8 alkyl group, an alkylthio group having a C1 -C8 alkyl group, a carboxy group, an alkoxycarbonyl group having a C1 -C6 alkyl group, or an alkanoyl group having a C1 -C6 alkyl group.

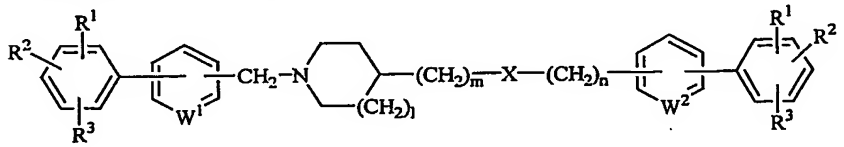
23. The composition according to claim 21, wherein R^4 is a hydrogen atom, a C1 -C8 alkyl group, a C3 -C8 alkenyl group, a C3 -C8 alkynyl group, a substituted or unsubstituted C6 -C14 aryl group, a substituted or unsubstituted heteroaryl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms, a substituted or unsubstituted (C6 -C14) -aryl -(C1 -C6) -alkyl group, or a substituted or unsubstituted

heteroaryl -(C1 -C6) -alkyl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms.

24. The composition according to claim 23, wherein the substituent(s) of the aryl group, the aryl group of the aralkyl group, the heteroaryl group, or the heteroaryl group of the heteroaralkyl group represented by R^4 is(are) one to three groups or atoms selected from an alkyl group, an alkoxy group, an alkylthio group, a halogen atom, a nitro group, an amino group, an acetylamino group, a trifluoromethyl group, and an alkylenedioxy group.

25. The composition according to claim 21, wherein the active ingredient is 4 -[N -(4 -methoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methoxyphenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,5 -dimethoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,4 -methylenedioxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -methyl -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methylthiophenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, or a salt thereof.

26. A gene therapy facilitating composition comprising a cyclic amine compound represented by the following formula (1):



(1)

(wherein R^1, R^2, and R^3 each independently represent a hydrogen atom, a halogen atom, a hydroxy group, an alkyl group, a halogen -substituted alkyl group, an alkoxy group, an alkylthio group, a carboxyl group, an alkoxycarbonyl group, or an alkanoyl group; W^1 and W^2 each independently represent N or CH; X represents O, NR^4, $CONR^4$, or NR^4CO; R^4 represents a hydrogen atom, an alkyl group, an alkenyl group, an alkynyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heteroaryl group, a substituted or unsubstituted aralkyl group, or a substituted or unsubstituted heteroaralkyl group; and l, m, and n each represent a number of 0or 1), a salt thereof, or a solvate thereof, and a pharmaceutically acceptable carrier.

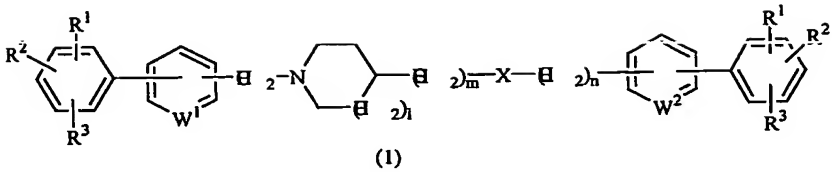
27. The composition according to claim 26, wherein R^1, R^2, and R^3 each are independently a hydrogen atom, a halogen atom, a hydroxy group, a C1 -C8 alkyl group, a halogen -substituted C1 -C8 alkyl group, an alkoxy group having a C1 -C8 alkyl group, an alkylthio group having a C1 -C8 alkyl group, a carboxy group, an alkoxycarbonyl group having a C1 -C6 alkyl group, or an alkanoyl group having a C1 -C6 alkyl group.

28. The composition according to claim 26, wherein R^4 is a hydrogen atom, a C1 -C8 alkyl group, a C3 -C8 alkenyl group, a C3 -C8 alkynyl group, a substituted or unsubstituted C6 -C14 aryl group, a substituted or unsubstituted heteroaryl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms, a substituted or unsubstituted (C6 -C14) -aryl -(C1 -C6) -alkyl group, or a substituted or unsubstituted heteroaryl -(C1 -C6) -alkyl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms.

29. The composition according to claim 28, wherein the substituent(s) of the aryl group, the aryl group of the aralkyl group, the heteroaryl group, or the heteroaryl group of the heteroaralkyl group represented by R^4 is(are) one to three groups or atoms selected from an alkyl group, an alkoxy group, an alkylthio group, a halogen atom, a nitro group, an amino group, an acetylamino group, a trifluoromethyl group, and an alkylenedioxy group.

30. The composition according to claim 26, wherein the active ingredient is 4 -[N -(4 -methoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methoxyphenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,5 -dimethoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,4 -methylenedioxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -methyl -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methylthiophenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, or a salt thereof.

31. Use, for producing histone deacetylase inhibitor of a cyclic amine compound represented by the following formula (1):



(I)

(wherein R^1, R^2, and R^3 each independently represent a hydrogen atom, a halogen atom, a hydroxy group, an alkyl group, a halogen -substituted alkyl group, an alkoxy group, an alkylthio group, a carboxyl group, an alkoxycarbonyl group, or an alkanoyl group; W^1 and W^2 each independently represent N or CH; X represents O, NR^4, $CONR^4$, or NR^4CO; R^4 represents a hydrogen atom, an alkyl group, an alkenyl group, an alkynyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heteroaryl group, a substituted or unsubstituted aralkyl group, or a substituted or unsubstituted heteroaralkyl group; and l, m, and n each represent a number of 0 or 1), a salt thereof, or a solvate thereof.

32. The use according to claim 31, wherein R^1, R^2, and R^3 are each independently a hydrogen atom, a halogen atom, a hydroxy group, a C1 -C8 alkyl group, a halogen -substituted C1 -C8 alkyl group, an alkoxy group having a C1 -C8 alkyl group, an alkylthio group having a C1 -C8 alkyl group, a carboxyl group, an alkoxycarbonyl group having a C1 -C6 alkyl group, or an alkanoyl group having a C1 -C6 alkyl group.

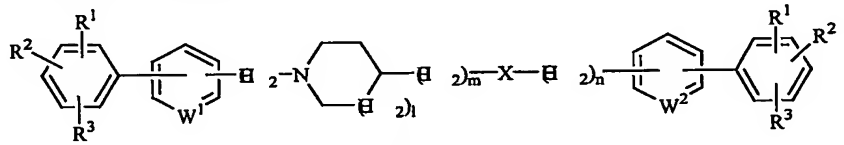
33. The use according to claim 31, wherein R^4 is a hydrogen atom, a C1 -C8 alkyl group, a C3 -C8 alkenyl group, a C3 -C8 alkynyl group, a substituted or unsubstituted C6 -C14 aryl group, a substituted or unsubstituted heteroaryl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms, a substituted or unsubstituted (C6 -C14) -aryl -(C1 -C6) -alkyl group, or a substituted or unsubstituted heteroaryl -(C1 -C6) -alkyl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms.

34. The use according to claim 33, wherein the substituent(s) of the aryl group, the aryl group of the aralkyl group, the heteroaryl group, or the heteroaryl group of the heteroaralkyl group represented by R^4 is (are) one to three groups or atoms selected from an alkyl group, an alkoxy group, an alkylthio group, a halogen atom, a nitro group, an amino group, an acetylamino group, a trifluoromethyl group, and an alkylenedioxy group.

35. The use according to claim 31, wherein the active ingredient is 4 -[N -(4 -methoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methoxyphenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5

-trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,5 -dimethoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,4 -methylenedioxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -methyl -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methylthiophenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, or a salt thereof.

36. Use, for producing medicine for treating cancer of a cyclic amine compound represented by the following formula (1):



(1)

(wherein R^1, R^2, and R^3 each independently represent a hydrogen atom, a halogen atom, a hydroxy group, an alkyl group, a halogen -substituted alkyl group, an alkoxy group, an alkylthio group, a carboxyl group, an alkoxycarbonyl group, or an alkanoyl group; W^1 and W^2 each independently represent N or CH; X represents O, NR^4, $CONR^4$, or NR^4CO; R^4 represents a hydrogen atom, an alkyl group, an alkenyl group, an alkynyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heteroaryl group, a substituted or unsubstituted aralkyl group, or a substituted or unsubstituted heteroaralkyl group; and l, m, and n each represent a number of 0 or 1), a salt thereof, or a solvate thereof.

37. The use according to claim 36, wherein R^1, R^2, and R^3 are each independently a hydrogen atom, a halogen atom, a hydroxy group, a C1 -C8 alkyl group, a halogen -substituted C1 -C8 alkyl group, an alkoxy group having a C1 -C8 alkyl group, an alkylthio group having a C1 -C8 alkyl group, a carboxy group, an alkoxycarbonyl group having a C1 -C6 alkyl group, or an alkanoyl group having a C1 -C6 alkyl group.

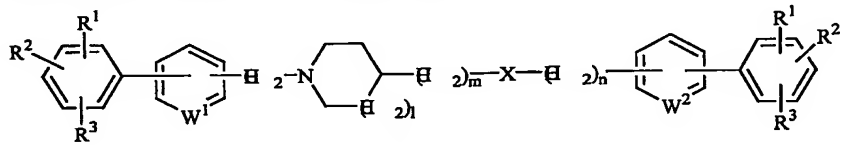
38. The use according to claim 36, wherein R^4 is a hydrogen atom, a C1 -C8 alkyl group, a C3 -C8 alkenyl group, a C3 -C8 alkynyl group, a substituted or unsubstituted C6 -C14 aryl group, a substituted or unsubstituted heteroaryl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms, a substituted or unsubstituted (C6 -C14) -aryl -(C1 -C6) -alkyl group, or a substituted or unsubstituted heteroaryl -(C1 -C6) -alkyl group containing a 5 - or 6 -membered ring having one to

four nitrogen atoms.

39. The use according to claim 38, wherein the substituent(s) of the aryl group, the aryl group of the aralkyl group, the heteroaryl group, or the heteroaryl group of the heteroaralkyl group represented by R^4 is(are) one to three groups or atoms selected from an alkyl group, an alkoxy group, an alkylthio group, a halogen atom, a nitro group, an amino group, an acetylamino group, a trifluoromethyl group, and an alkylenedioxy group.

40. The use according to claim 36, wherein the active ingredient is 4 -[N -(4 -methoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methoxyphenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,5 -dimethoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,4 -methylenedioxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -methyl -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methylthiophenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, or a salt thereof.

41. Use, for producing gene therapy facilitator, of a cyclic amine compound represented by the following formula (1):



(I)

(wherein R^1, R^2, and R^3 each independently represent a hydrogen atom, a halogen atom, a hydroxy group, an alkyl group, a halogen -substituted alkyl group, an alkoxy group, an alkylthio group, a carboxyl group, an alkoxycarbonyl group, or an alkanoyl group; W^1 and W^2 each independently represent N or CH; X represents O, NR^4, $CONR^4$, or NR^4CO; R^4 represents a hydrogen atom, an alkyl group, an alkenyl group, an alkynyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heteroaryl group, a substituted or unsubstituted aralkyl group, or a substituted or unsubstituted heteroaralkyl group; and l, m, and n each represent a number of 0or 1), a salt thereof, or a solvate thereof.

42. The use according to claim 41, wherein R^1, R^2, and R^3 each are

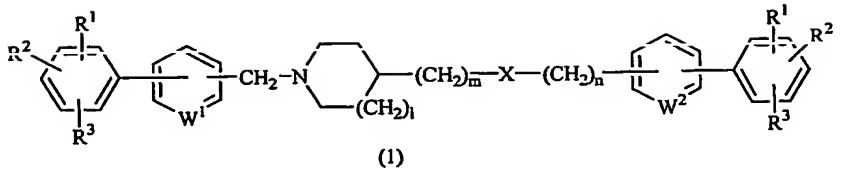
independently a hydrogen atom, a halogen atom, a hydroxy group, a C1 -C8 alkyl group, a halogen -substituted C1 -C8 alkyl group, an alkoxy group having a C1 -C8 alkyl group, an alkylthio group having a C1 -C8 alkyl group, a carboxy group, an alkoxycarbonyl group having a C1 -C6 alkyl group, or an alkanoyl group having a C1 -C6 alkyl group.

43. The use according to claim 41, wherein R^4 is a hydrogen atom, a C1 -C8 alkyl group, a C3 -C8 alkenyl group, a C3 -C8 alkynyl group, a substituted or unsubstituted C6 -C14 aryl group, a substituted or unsubstituted heteroaryl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms, a substituted or unsubstituted (C6 -C14) -aryl -(C1 -C6) -alkyl group, or a substituted or unsubstituted heteroaryl -(C1 -C6) -alkyl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms.

44. The use according to claim 43, wherein the substituent(s) of the aryl group, the aryl group of the aralkyl group, the heteroaryl group, or the heteroaryl group of the heteroaralkyl group represented by R^4 is(are) one to three groups or atoms selected from an alkyl group, an alkoxy group, an alkylthio group, a halogen atom, a nitro group, an amino group, an acetylamino group, a trifluoromethyl group, and an alkylenedioxy group.

45. The use according to claim 41, wherein the active ingredient is 4 -[N -(4 -methoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methoxyphenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,5 -dimethoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,4 -methylenedioxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -methyl -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methylthiophenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, or a salt thereof.

46. A method for inhibiting histone deacetylase, comprising administering an effective amount of a cyclic amine compound represented by the following formula (1):



(1)

(wherein R^1, R^2, and R^3 each independently represent a hydrogen atom, a halogen atom, a hydroxy group, an alkyl group, a halogen -substituted alkyl group, an alkoxy group, an alkylthio group, a carboxyl group, an alkoxycarbonyl group, or an alkanoyl group; W^1 and W^2 each independently represent N or CH; X represents O, NR^4, $CONR^4$, or NR^4CO; R^4 represents a hydrogen atom, an alkyl group, an alkenyl group, an alkynyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heteroaryl group, a substituted or unsubstituted aralkyl group, or a substituted or unsubstituted heteroaralkyl group; and l, m, and n each represent a number of 0 or 1), a salt thereof, or a solvate thereof.

47. The method according to claim 46, wherein R^1, R^2, and R^3 are each independently a hydrogen atom, a halogen atom, a hydroxy group, a C1 -C8 alkyl group, a halogen -substituted C1 -C8 alkyl group, an alkoxy group having a C1 -C8 alkyl group, an alkylthio group having a C1 -C8 alkyl group, a carboxyl group, an alkoxycarbonyl group having a C1 -C6 alkyl group, or an alkanoyl group having a C1 -C6 alkyl group.

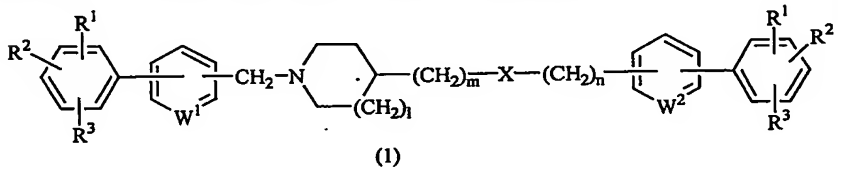
48. The method according to claim 46, wherein R^4 is a hydrogen atom, a C1 -C8 alkyl group, a C3 -C8 alkenyl group, a C3 -C8 alkynyl group, a substituted or unsubstituted C6 -C14 aryl group, a substituted or unsubstituted heteroaryl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms, a substituted or unsubstituted (C6 -C14) -aryl -(C1 -C6) -alkyl group, or a substituted or unsubstituted heteroaryl -(C1 -C6) -alkyl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms.

49. The method according to claim 48, wherein the substituent(s) of the aryl group, the aryl group of the aralkyl group, the heteroaryl group, or the heteroaryl group of the heteroaralkyl group represented by R^4 is (are) one to three groups or atoms selected from an alkyl group, an alkoxy group, an alkylthio group, a halogen atom, a nitro group, an amino group, an acetylamino group, a trifluoromethyl group, and an alkylenedioxy group.

50. The method according to claim 46, wherein the active ingredient is 4 -[N -(4 -methoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methoxyphenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2

-(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,5 -dimethoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,4 -methylenedioxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -methyl -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methylthiophenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, or a salt thereof.

51. A method for treating cancer, comprising administering an effective amount of a cyclic amine compound represented by the following formula (1):



(1)

(wherein R^1, R^2, and R^3 each independently represent a hydrogen atom, a halogen atom, a hydroxy group, an alkyl group, a halogen -substituted alkyl group, an alkoxy group, an alkylthio group, a carboxyl group, an alkoxycarbonyl group, or an alkanoyl group; W^1 and W^2 each independently represent N or CH; X represents O, NR^4, $CONR^4$, or NR^4CO; R^4 represents a hydrogen atom, an alkyl group, an alkenyl group, an alkynyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heteroaryl group, a substituted or unsubstituted aralkyl group, or a substituted or unsubstituted heteroaralkyl group; and l, m, and n each represent a number of 0 or 1), a salt thereof, or a solvate thereof.

52. The method according to claim 51, wherein R^1, R^2, and R^3 are each independently a hydrogen atom, a halogen atom, a hydroxy group, a C1 -C8 alkyl group, a halogen -substituted C1 -C8 alkyl group, an alkoxy group having a C1 -C8 alkyl group, an alkylthio group having a C1 -C8 alkyl group, a carboxy group, an alkoxycarbonyl group having a C1 -C6 alkyl group, or an alkanoyl group having a C1 -C6 alkyl group.

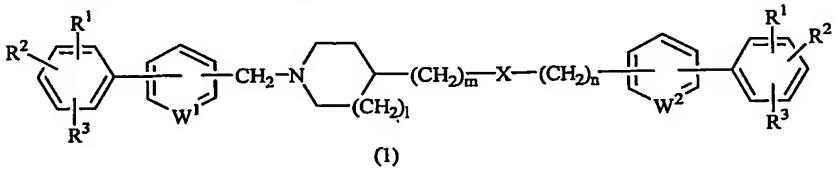
53. The method according to claim 51, wherein R^4 is a hydrogen atom, a C1 -C8 alkyl group, a C3 -C8 alkenyl group, a C3 -C8 alkynyl group, a substituted or unsubstituted C6 -C14 aryl group, a substituted or unsubstituted heteroaryl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms, a substituted or unsubstituted (C6 -C14) -aryl -(C1 -C6) -alkyl group, or a substituted or unsubstituted heteroaryl -(C1 -C6) -alkyl group containing a 5 - or 6 -membered ring having one to

four nitrogen atoms.

54. The method according to claim 53, wherein the substituent(s) of the aryl group, the aryl group of the aralkyl group, the heteroaryl group, or the heteroaryl group of the heteroaralkyl group represented by R^4 is(are) one to three groups or atoms selected from an alkyl group, an alkoxy group, an alkylthio group, a halogen atom, a nitro group, an amino group, an acetylamino group, a trifluoromethyl group, and an alkylenedioxy group.

55. The method according to claim 51, wherein the active ingredient is 4 -[N -(4 -methoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methoxyphenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,5 -dimethoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,4 -methylenedioxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -methyl -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methylthiophenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, or a salt thereof.

56. A method for facilitating gene therapy, comprising administering an effective amount of a cyclic amine compound represented by the following formula (1):



(1)

(wherein R^1, R^2, and R^3 each independently represent a hydrogen atom, a halogen atom, a hydroxy group, an alkyl group, a halogen -substituted alkyl group, an alkoxy group, an alkylthio group, a carboxyl group, an alkoxycarbonyl group, or an alkanoyl group; W^1 and W^2 each independently represent N or CH; X represents O, NR^4, $CONR^4$, or NR^4CO; R^4 represents a hydrogen atom, an alkyl group, an alkenyl group, an alkynyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heteroaryl group, a substituted or unsubstituted aralkyl group, or a substituted or unsubstituted heteroaralkyl group; and l, m, and n each represent a number of 0or 1), a salt thereof, or a solvate thereof.

57. The method according to claim 56, wherein R^1, R^2, and R^3 each are

independently a hydrogen atom, a halogen atom, a hydroxy group, a C1 -C8 alkyl group, a halogen -substituted C1 -C8 alkyl group, an alkoxy group having a C1 -C8 alkyl group, an alkylthio group having a C1 -C8 alkyl group, a carboxy group, an alkoxycarbonyl group having a C1 -C6 alkyl group, or an alkanoyl group having a C1 -C6 alkyl group.

58. The method according to claim 56, wherein R^4 is a hydrogen atom, a C1 -C8 alkyl group, a C3 -C8 alkenyl group, a C3 -C8 alkynyl group, a substituted or unsubstituted C6 -C14 aryl group, a substituted or unsubstituted heteroaryl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms, a substituted or unsubstituted (C6 -C14) -aryl -(C1 -C6) -alkyl group, or a substituted or unsubstituted heteroaryl -(C1 -C6) -alkyl group containing a 5 - or 6 -membered ring having one to four nitrogen atoms.

59. The method according to claim 58, wherein the substituent(s) of the aryl group, the aryl group of the aralkyl group, the heteroaryl group, or the heteroaryl group of the heteroaralkyl group represented by R^4 is(are) one to three groups or atoms selected from an alkyl group, an alkoxy group, an alkylthio group, a halogen atom, a nitro group, an amino group, an acetylamino group, a trifluoromethyl group, and an alkylenedioxy group.

60. The method according to claim 56, wherein the active ingredient is 4 -[N -(4 -methoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methoxyphenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,5 -dimethoxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(3,4 -methylenedioxyphenyl) -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -methyl -N -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, 4 -[N -(4 -methylthiophenyl) -N -[[5 -(3,4,5 -trimethoxyphenyl)pyridin -3 -yl]methyl]amino] -1 -[[2 -(3,4,5 -trimethoxyphenyl)pyridin -4 -yl]methyl]piperidine, or a salt thereof.